CLAIMS

1) Nucleic acid sequence, characterized in that it presents the sequence SEQ ID NO. 1 and in that it is capable of expressing a functional human kin17 protein.

2) Nucleic acid sequence, characterized in that it encodes a kin17 protein which is truncated at a region which is homologous to the recA protein and in which at least the fragment between amino acids 162 and 201, and at most the fragment between amino acids 55 to 235, is deleted.

3) Sequence according to Claim 2, characterized in that said nucleic acid sequence encodes a truncated kin17 protein which corresponds to the mouse kin17 protein in which the fragment between amino acids 129 to 228 is deleted, and in that it presents the sequence SEQ ID NO. 2.

4) Sequence according to Claim 2, characterized in that said nucleic acid sequence encodes a truncated kin17 protein which corresponds to the human kin17 protein in which the fragment 129 to 228 is deleted, and in that it presents the sequence SEQ ID NO. 3.

5) Fragments of the sequence SEQ ID NO. 1, for detecting the gene encoding the human kin17 protein, and/or the RNA of the *Kin17* gene, in a biological sample characterized in that they are selected from the group consisting of sequences SEQ ID NO. 4-21 and 33.

6) Method for detecting genomic DNA or a transcription product of the human *Kin17* gene, by gene amplification and/or hybridization, which is carried out starting from a biological sample, this method being characterized in that it comprises:

(1) a step in which a biological sample to be analysed is brought into contact with at least one probe selected from the group consisting of the sequences SEQ ID NO. 1 to 21 and 33 and

(2) a step in which the resulting product(s) of

the nucleotide sequence-probe interaction is (are) detected by any suitable means.

7) Method according to Claim 6, characterized in that the probe in step (1) is optionally labelled with the aid of a label such as a radioactive isotope, an appropriate enzyme or a fluorochrome.

8) Method according to Claim 6 or Claim 7, characterized in that said probe consists of the sequence SEQ ID NO 4.

9) Method according to any one of Claims 6 to 8, characterized in that it can comprise, prior to step (1):

a step for extracting the nucleic acid to be detected, and

. at least one genic amplification cycle carried out with the aid of a pair of primers selected from the sequences SEQ ID NO. 5 to 21, preferably with the aid of the pair of primers SEQ ID NO. 16 and SEQ ID NO. 17.

10) Method for detecting a transcription product of the human *Kin17* gene, characterized in that it comprises:

- a step for extracting the RNA to be detected,
- a step for synthesizing the cDNA corresponding to said RNA by reverse transcription in the presence of random primers,
- at least one gene amplification cycle carried out with the aid of a pair of primers selected from the sequences SEQ ID NO. 5 to 21, and
- the detection of the amplified product.

11) Detection method according to Claim 10, characterized in that said pair of primers is selected from the group consisting of the following pairs: sequences SEQ ID NO. 5 and SEQ ID NO. 12, for amplifying a 453-bp fragment; sequences SEQ ID NO. 18 and SEQ ID NO. 19, for amplifying a 1265-bp fragment and sequences SEQ ID NO. 16 and SEQ ID NO. 7, for amplifying a 224-bp fragment.

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12) Detection method according to Claim 10 or Claim 11, characterized in that the detection is carried out by gel electrophoresis and suitable revelation, optionally followed by a quantification.

13) Protein, characterized in that it corresponds to a kin17 protein truncated at a region which is homologous to the recA protein and in which at least the fragment between amino acids 162 and 201, and at most the fragment between amino acids 55 to 235, is deleted.

14) Protein according to Claim 13, characterized in that said truncated kin17 protein corresponds to the mouse kin17 protein in which the fragment between amino acids 129 to 228 is deleted, and presents the sequence SEQ ID NO. 22 (sequence termed $_{Mm}$kin17ΔHR).

15) Protein according to Claim 13, characterized in that said truncated kin17 protein corresponds to a human kin17 protein in which the fragment 129 to 228 is deleted, and presents the sequence SEQ ID NO. 23 (sequence termed $_{Hs}$kin17ΔHR).

16) Fragment of a nucleic acid sequence encoding a segment of a mammalian kin17 protein, characterized in that it comprises between 300 and 360 nucleotides encoding the C-terminal portion of a mammalian kin17 protein (SEQ ID NO. 1 or SEQ ID NO. 24), and is capable of controlling cell proliferation.

17) Fragment according to Claim 16, characterized in that it is selected from the group consisting of SEQ ID NO. 33 and SEQ ID NO. 34.

18) Fragment of kin17 protein, characterized in that it comprises between 100 and 120 amino acids located in the C-terminal position of the sequence SEQ ID NO. 25 or of the sequence SEQ ID NO. 26.

19) Fragment according to Claim 18, characterized in that it is selected from the group consisting of SEQ ID NO. 35 and SEQ ID NO. 36.

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20) Use of a mammalian kin17 protein or of a protein fragment according to any one of Claims 13 to 15 and 18, 19, for preparing a medicinal product which controls cell proliferation.

21) Use according to Claim 20, for preparing a medicinal product which inhibits cell proliferation, and which is in particular intended for treating diseases in which a cellular hyperproliferation is observed.

22) Use of a mammalian kin17 protein or of a protein fragment according to any one of Claims 13 to 15 and 18, 19, for preparing a medicinal product which controls fertility.

23) Use according to any one of Claims 20 to 22, characterized in that said sequence is selected from the group consisting of the sequences SEQ ID NO. 22, 23, 25, 26, 35 and 36.

24) Expression vector, characterized in that it includes a sequence encoding a mammalian kin17 protein or a fragment of it selected from the group consisting of the sequences SEQ ID NO. 1, 2, 3, 33 and 34.

25) Expression vector according to Claim 24, characterized in that said sequence encoding said kin17 protein or said fragment of it is fused with a gene which encodes a fluorescent protein.

26) Use of an expression vector which includes a sequence selected from the group consisting of the sequences SEQ ID NO. 1, 2, 3, 24, 33 and 34, for preparing a medicinal product which controls cell proliferation.

27) Use of an expression vector which includes a sequence selected from the group consisting of the sequences SEQ ID NO. 1, 2, 3, 24, 33 and 34, as a detection tool, in particular for visualizing the sites and the progression of DNA repair, and the intranuclear centres of biosynthesis.

28) Use of the fragment between amino acids 55 to 235, preferably the fragment between amino acids 129

and 228, of a mammalian kin17 protein, for regulating the protein-curved DNA interaction.

29) Reagents for detecting a nucleic acid sequence encoding a mammalian kin17 protein or a modified fragment of these sequences, characterized in that they include the sequences SEQ ID NO. 4 to 21, 33 and 34, as well as the fragments A of 453-bp, B of 1265-bp and C of 224-bp, optionally labelled.